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10/061,800	01/30/2002	Svetlana V. Shchegrova	10010464-1	1874

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AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P.O. Box 7599  
Loveland, CO 80537-0599

EXAMINER
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SHIBUYA, MARK LANCE

ART UNIT	PAPER NUMBER
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1639

MAIL DATE	DELIVERY MODE
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11/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Advisory Action</b> <b>Before the Filing of an Appeal Brief</b>	<b>Application No.</b> 10/061,800	<b>Applicant(s)</b> SHCHEGROVA ET AL.	
	<b>Examiner</b> Mark L. Shibuya, Ph.D.	<b>Art Unit</b> 1639	

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 09 October 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.  
 b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

#### AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
- (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
 (b) ☐ They raise the issue of new matter (see NOTE below);  
 (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
 5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
 6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: \_\_\_\_\_.


Claim(s) withdrawn from consideration: \_\_\_\_\_.

#### AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
 9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
 10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

#### REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
Please see attached sheets.  
 12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_  
 13. ☐ Other: \_\_\_\_\_.

  
 Mark L. Shibuya, Ph.D.  
 Primary Examiner  
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**ADVISORY ACTION**

1. Application 10061800, (20030143329 A1): Claims 1-33 and 49-53 are pending and examined. Claims 49-53 were newly added.

**Priority**

2. The instant application, 10/061800, was filed 01/30/2002.
3. The examiner respectfully notes that a previous rejection over of claims 1-33 under 35 USC 102(a), as being anticipated by Agilent Technologies Inc. (Agilent) (GB 2,355,716 A), was withdrawn before appeal, (see, Final Rejection, mailed 6/2/2005, at p. 7), in consideration of the Declaration, entered 3/25/2005, which was filed pursuant to C.F.R. §1.131. In arguments, entered 3/25/2005, appellant's representative stated that the said Declaration demonstrated that the present application was invented prior to February 5, 2001.

**Claim Rejections - 35 USC § 112, Second Paragraph**

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-33 and 49-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's amendment necessitates the new grounds of rejection.

Independent claim 1 has been amended to state the limitation "wherein the non-error second dispenser dispenses drop only where the identified error first dispenser did not dispense drops in the pattern for the selected path". Other independent claims 6, 25 and 52 state similar language and the same reasons for the instant rejection apply to all of the independent claims, *mutatis mutandis*. The examiner finds that there are at least three interpretations for this language.

First, this language could be construed to mean that the non-error second dispenser does not dispense any drops at all, except "only where" the identified error first dispenser should have, but did not, dispense drops in the said selected path. In other words, the first and second dispensers of a set can only deposit drops in the same locations. If a first dispenser of a set is found to be in error, a non-error second dispenser of the same set, can only dispense where first dispenser failed to cover, and not in a separate location or pattern.

The examiner submits that this construction seems to be consistent, e.g., with applicant's traversal of the anticipatory rejection, in the Reply at p. 14/18, stating: "Specifically, the 'non-error' dispensers of Kumar et al. deposit drops in location other than where an error dispenser in the same set did not deposit a drop." This argument is

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repeated against the Hackleman and Anderson publication in the rejection for obviousness, (Reply at p. 15/18 and 16/18).

Secondly, this language could be construed to mean that non-error second dispenser dispenses drops only in those locations on the substrate in the selected path of, e.g., a first group, (of which the identified error first dispense is a member), **only** *where* the identified error first dispenser did not dispense drops in the pattern for said selected path of the first group. The examiner respectfully notes that this limitation encompasses the dispensing of drops, by the non-error second dispenser, that avoid any droplets resulting from a "soft nozzle failure" that resulted in a solution break up into multiple smaller drop during firing of the identified error first dispenser, (see, Invention Disclosure reproduced in the Appendix of the Declaration by all of the instant inventors, entered 3/25/2005, at p. 31, first paragraph [entitled "Problem"]).

#### Response to Arguments after Final Rejection

Applicant argues the language "wherein the non-error second dispenser dispenses drop only where the identified error first dispenser did not dispense drops in the pattern for the selected path" is not indefinite because a second interpretation contradicts other explicit limitations of the claims and thus is not an alternative interpretation. Applicant argues that that "non-error dispensers do not dispense at all", as clear from the following limitations:

1. identifying error-dispensers (either "hard" or "soft" error dispensers);
2. depositing drops from non-error dispensers in the selected pattern; and
3. moving a second, redundant dispenser along the selected path while dispensing drops from a non-error second dispenser only where the

identified error first dispenser did not dispense drops in the pattern for the selected path.

Reply after final rejection, at p. 10.

Applicant's arguments, entered 10/9/2007, have been fully considered but they are not persuasive. Applicant's argument that one of skill in the art would be reasonably apprised of the scope of the claimed invention by inspection of the identified claim limitations is not persuasive, because included among these limitations is the language that is, itself, the subject of the rejection under 35 USC 112, second paragraph. The examiner respectfully submits that this argument appears to be circular in its reasoning.

#### **Claim Rejections - 35 USC § 112, First Paragraph**

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-33 and 49-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection is for new matter.

Applicant's amendment necessitates the new grounds of rejection.

Independent claim 1 has been amended to state the limitation "wherein the non-error second dispenser dispenses drops only where the identified error first dispenser

did not dispense drops in the pattern for the selected path". Other independent claims 6, 25 and 52 state similar language and the same reasons for the instant rejection apply to all of the independent claims, *mutatis mutandis*.

The examiner respectfully notes that the specification, at p. 13, lines 30-31, states that "[o]nly one non-error dispenser in each set is needed during array fabrication."

The claims now encompass methods wherein non-error second dispenser dispenses drops only in those locations on the substrate in the selected path of, e.g., a first group, (of which the identified error first dispense is a member), **only** where the identified error first dispenser did not dispense drops in the pattern for said selected path of the first group. The examiner respectfully notes that this limitation encompasses the dispensing of drops, by the non-error second dispenser, that avoid any droplets resulting from a "soft nozzle failure" that resulted in a solution break up into multiple smaller drop during firing of the identified error first dispenser, (see, Invention Disclosure reproduced in the Appendix of the Declaration by all of the instant inventors, entered 3/25/2005, at p. 31, first paragraph [entitled "Problem"]).

The examiner respectfully submits that this species of method is not described in the specification as filed. The specification does not describe methods wherein a non-error second dispense only to those areas around imperfect deposition of droplets resulting from soft nozzle failures, as described in the inventor's declaration pursuant to 37 CFR 1.131. Therefore, one of skill in the art would not envision that applicant had possession of the full scope of the claimed invention.

### Response to Arguments after Final Rejection

Applicant argues the language "wherein the non-error second dispenser dispenses drop only where the identified error first dispenser did not dispense drops in the pattern for the selected path" is not indefinite because a second interpretation contradicts other explicit limitations of the claims and thus is not an alternative interpretation. Applicant argues that that "non-error dispensers do not dispense at all", as clear from the following limitations:

1. identifying error-dispensers (either "hard" or "soft" error dispensers);
2. depositing drops from non-error dispensers in the selected pattern; and
3. moving a second, redundant dispenser along the selected path while dispensing drops from a non-error second dispenser only where the identified error first dispenser did not dispense drops in the pattern for the selected path.

Reply after final rejection, at p. 10.

Applicant's arguments, entered 10/9/2007, have been fully considered but they are not persuasive. Applicant's argument that one of skill in the art would be reasonably apprised of the scope of the claimed invention by inspection of the identified claim limitations is not persuasive, because included among these limitations is the language that is, itself, the subject of the rejection under 35 USC 112, second paragraph. The examiner respectfully submits that this argument appears to be circular in its reasoning.

### Claim Rejections - 35 USC § 102

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.



9. Claims 1-33 and 52 are rejected under 35 U.S.C. 102(a, e) as being anticipated by Kumar et al., US 6,283,572, (9/4/01: 3/4/97; of record, IDS entered 10/31/2006).

This rejection is maintained for the reasons of record as set forth in the previous Office action. That rejection is copied below for the convenience of the reader. This rejection is necessitated by applicant's amendments to the claims.

The claims of the invention set forth methods that utilize a set of non-error redundant dispensers to correct identified error dispensers. The methods claimed generally comprise the steps of loading each set of redundant dispensers with the same fluid; dispensing drops from the dispensers to identify an error; moving first dispensers or a frame of first dispensers along a selected path while dispensing only from non-error dispensers, and moving a redundant dispenser or frame with redundant dispensers along the selected path while dispensing drops from non-error redundant dispensers in the same set as the error first dispensers.

Kumar et al., US 6,283,572, throughout the patent and especially in the background of invention, col. 1, lines 43-50, teach that an inkjet printer prints ink dots at particular locations of an array, thereby reading on fabricating a chemical array. Kumar et al., at col. 7, line 23-col. 8, line 56, Figure 7, Tables I and II, disclose methods comprising redundant nozzles, wherein each nozzle is tested (col. 6, line 15-col. 7, line 8); and wherein malfunctioning dispensers are replaced by redundant dispensers. Kumar et al., col. 1, line 61-col. 2, line 10, teaches pulse inkjet dispensers.

### Response to Arguments

Applicant, in the Reply at p. 14/18, argues “the ‘non-error’ dispensers of Kumar et al. deposit drops in location other than where an error dispenser in the same set did not deposit a drop.”

Applicant's arguments, entered 5/29/2007, have been fully considered but they are not persuasive. Kumar et al., at Tables I and II teach deposition by redundant dispensers (nozzles 2, 50 and 98 of Table II) that dispense only where (i.e., Row 2) the defective dispenser (nozzle 146) should have, but did not.

### Response to Arguments after Final Rejection

Applicant argues the language “wherein the non-error second dispenser dispenses drop only where the identified error first dispenser did not dispense drops in the pattern for the selected path” is not indefinite because a second interpretation contradicts other explicit limitations of the claims and thus is not an alternative interpretation. Applicant argues that that “non-error dispensers do not dispense at all”, as clear from the following limitations:

1. identifying error-dispensers (either “hard” or “soft” error dispensers);
2. depositing drops from non-error dispensers in the selected pattern; and
3. moving a second, redundant dispenser along the selected path while dispensing drops from a non-error second dispenser only where the identified error first dispenser did not dispense drops in the pattern for the selected path.

Reply after final rejection, at p. 10.

Applicant argues that Table II and its description, as disclosed by Kumar et al., clearly state that “non-error” dispensers dispense drops both at locations where

identified error dispensers did not (i.e., where "error" dispense 146 did not) and at locations other than where identified error dispensers did not.

Applicant's arguments, entered 10/9/2007, have been fully considered but they are not persuasive. Applicant's argument that one of skill in the art would be reasonably apprised of the scope of the claimed invention by inspection of the identified claim limitations is not persuasive, because included among these limitations is the language that is, itself, the subject of the rejection under 35 USC 112, second paragraph. The examiner respectfully submits that this argument appears to be circular in its reasoning.

The examiner respectfully submits the limitations "second dispenser dispenses drops only where the identified error first dispenser did not dispense drops in the pattern for the selected path" encompasses "non-error" dispensers dispense drops both at locations where identified error dispensers did not (i.e., where "error" dispense 146 did not) and at locations other than where identified error dispensers did not, as taught by Kumar.

### **Claim Rejections - 35 USC § 103**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 1-33 and 49-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al., US 6,283,572, (9/4/01: 3/4/97; of record, IDS entered 10/31/2006), and in view of MacBeath, "Printing Proteins as Microarrays for High-

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Throughput Function Determination," Science, New Series, col. 289, No. 5485 (Sep. 8, 2000), pp. 1760-1763.

Applicant's amendment necessitates the new grounds of rejection.

Kumar et al., is relied upon, as in the above rejection for anticipation.

Kumar et al., does not disclose methods comprising fabricating an array that is a biopolymeric array, in claims 49-51 and 53.

MacBeath, "Printing Proteins as Microarrays for High-Throughput Function Determination," Science, New Series, col. 289, No. 5485 (Sep. 8, 2000), pp. 1760-1763, throughout the publication, and at p. 1760, right-hand column, teach using contact printing to fabricate protein arrays.

It would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made to combine methods comprising dispenser technology include the step of identifying an error dispenser as taught by Kumar et al. in the method of MacBeath et al., biopolymeric arrays are fabricated.

One of ordinary skill in the art would have been motivated use printing methods to fabricate biopolymer arrays because MacBeath, in the abstract, teach the use of such methods to permit high-throughput assays of thousands of proteins.

Thus it would have been reasonable for one of ordinary skill in the art to look to the field of printer technology at the time of invention given that microarray production companies were innovating with concepts borrowed from printer technology.

### Response to Arguments after Final Rejection

Applicant argues the language “wherein the non-error second dispenser dispenses drop only where the identified error first dispenser did not dispense drops in the pattern for the selected path” is not indefinite because a second interpretation contradicts other explicit limitations of the claims and thus is not an alternative interpretation. Applicant argues that that “non-error dispensers do not dispense at all”, as clear from the following limitations:

1. identifying error-dispensers (either “hard” or “soft” error dispensers);
2. depositing drops from non-error dispensers in the selected pattern; and
3. moving a second, redundant dispenser along the selected path while dispensing drops from a non-error second dispenser only where the identified error first dispenser did not dispense drops in the pattern for the selected path.

Reply after final rejection, at p. 10.

Applicant argues that Table II and its description, as disclosed by Kumar et al., clearly state that “non-error” dispensers dispense drops both at locations where identified error dispensers did not (i.e., where “error” dispense 146 did not) and at locations other than where identified error dispensers did not.

Applicant further argues that that modify the teachings of Kumar to comport with the limitation of fabricating an array that is a biopolymeric array would render the invention of Kumar unsuitable for its intended purpose because “[f]ailure to deposit at such ‘normal locations’ would result in a printed product that is missing deposited drops where drops should be: precisely the opposite result that Kumar et al. is trying to achieve”, (Reply after final rejection at p. 14).

Applicant's arguments, entered 10/9/2007, have been fully considered but they are not persuasive. Applicant's argument that one of skill in the art would be reasonably apprised of the scope of the claimed invention by inspection of the identified claim limitations is not persuasive, because included among these limitations is the language that is, itself, the subject of the rejection under 35 USC 112, second paragraph. The examiner respectfully submits that this argument appears to be circular in its reasoning.

The examiner respectfully submits the limitations "second dispenser dispenses drops only where the identified error first dispenser did not dispense drops in the pattern for the selected path" encompasses "non-error" dispensers dispense drops both at locations where identified error dispensers did not (i.e., where "error" dispense 146 did not) and at locations other than where identified error dispensers did not, as taught by Kumar.

Furthermore, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant's arguments are directed at Kumar and not the combination of the references of Kumar and MacBeath.

The examiner respectfully submits that applicant's argument that the combination of Kumar and MacBeath would render the invention of Kumar unsuitable for its intended purpose because "[f]ailure to deposit at such 'normal locations' would result in a printed product that is missing deposited drops where drops should be: precisely the opposite

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result that Kumar et al. is trying to achieve" is not persuasive or plausible. Kumar teaches a method of controlling error in array fabrication. Using the method of Kumar to print a biopolymeric array would not result in a printed product that is missing deposited drops where drops should be.

### **Conclusion**

11. Claims 1-33 and 49-53 stand finally rejected.